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# Mineral Industry Surveys

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## ZINC IN JULY 2002

Domestic mine production in July, at 68,500 metric tons (t), was about 3% more than in June and slightly more than in July 2001. Smelter production, at 13,300 t, was about 26% less than in June and about 30% less than a year before. Apparent consumption, at 65,100 t, was the same as during the previous month, but was about 3 % less than in July 2001.

The Platts Metals Week average monthly composite price for North American Special High Grade zinc increased by more than 3% to 39.30 cents per pound in July. Compared with July 2001, the zinc price declined by about 7%.

Operations at the Montana Tunnels Mine were suspended in June in order to increase the size of the pit to access new areas. Operations at the mine are expected to resume in October 2002. Earlier this year, in anticipation of increased production from these new areas, Montana Tunnels Mining Inc. sought permission to increase the height to which it can fill the tailings pond. Although Montana Tunnels has always been an open pit mine, there is a possibility of going underground if no more mineralization is found close enough to the surface. Such a move, however, would require investment levels that could not be justified at current metal prices (CRU International Ltd., 2002a).

The U.S. Environmental Protection Agency has issued its regulation under the Resource Conservation and Recovery Act (RCRA) that applies to the recycling of hazardous secondary materials to make zinc fertilizer. The new rule removes from land disposal restrictions and treatment standards an exemption for zinc fertilizers made from electric arc furnace dust. It also establishes in the RCRA definition of solid waste an exemption for hazardous secondary materials that are legitimately recycled to make zinc micronutrient fertilizers. The effective date for implementation of this new rule is January 24, 2003 (ILZRO Environmental Update, 2002).

The London Metal Exchange (LME) price of zinc fell to its lowest level in the past 15 years. One of the reasons for the decline has been a production surplus significantly raising industry stocks. In LME warehouses alone, stock have risen by over 200,000 t since the beginning of the year. According to the latest data from the International Lead and Zinc Study Group, global stocks grew in June by over 15,000 t to 1.08 million metric tons (Mt). In addition, the market surplus in 2002 is likely to remain in excess of 300,000 t, further increasing stocks in warehouses.

Low prices and overproduction have placed zinc producers under pressure to reduce output. Four major Chinese zinc plants were among the first to respond. Together, the plants may cut 2002 output by a total of 220,000 t and cut exports of zinc metal by up to 50,000 t, not only because of weak zinc prices, but also in response to tight concentrate supplies. According to a decision reached during an annual meeting held in mid-July, Huludao Zinc Plant in Liaoning Province will cut its production to 200,000 t in 2002 from 290,000 t last year. Although Huludao has a total capacity of 330,000 metric tons per year (t/yr), the 130,000-t/yr line that was shut down in August 2001, will remain closed for the rest of this year. Zhuzhou Smelter will cut 50,000 t of zinc output this year and Baiying Nonferrous Metals Co. Ltd. will trim about 20,000 t. Officials at Shaoguan Smelter, while confirming they will reduce production, have not yet decided on the amount to be cut (Metal Bulletin, 2002a).

The value of zinc sold by Thailand's Padaeng Industry Co. Ltd. during the first half of 2002 declined by 18% compared with the same period in 2001 despite a 2.7% increase in the quantity of zinc sold. Leading reasons for lower profits in 2001 included declining zinc prices, the appreciation of the Thai Bath, and the increasing cost of raw materials (Platts Metals Week, 2002a). In order to help the only zinc smelter in Southeast Asia, the Department of Mineral Resources of Thailand approved a new mining license for Padaeng. The license covers 39 hectares (96 acres) of land bordering the company's existing mine in the northern district of Mae Sot, Tak Province. The new license will enable Padaeng to access a larger amount of ore within its current mining area as well as new ore resources in the adjacent zone. Padaeng, which has an

annual production capacity of 100,000 t/yr, plans to start exploration in the newly acquired area as soon as possible, in order to determine what additional zinc resources are available. At the end of 2001, total resources at Mae Sot Mine amounted to 5.14 Mt grading 12% zinc (Metal Bulletin, 2002b).

Vietnam is attempting a joint venture to produce zinc powder as a step toward its long-term goal of building a smelting facility in the northern part of the country. The project is being backed by the state-owned Vietnam National Minerals Corp. (Vimico), which mines the Cho Dien lead-zinc deposit in Bac Can Province, north of Ho Chi Minh City (Hanoi). The zinc powder plant, to be constructed in 2003, would be owned 70% by Thai interests and 30% by Vimico. Currently, Vimico is producing between 40,000 t/yr and 50,000 t/yr of concentrate at the Cho Dien Mine, with an average metal content of 25% zinc and 2%-3% lead. All concentrate is currently shipped to China and Thailand, although that may change if Vietnam builds its own smelter. The proposal for a smelter has been supported by the discovery of a major lead-zinc deposit in the Tuyen Quang province, adjacent to Bac Can Province, where the only zinc producing mine in Vietnam is located. The newly discovered resource contains an estimated 0.5 Mt of metal, approximately 80% zinc and 20% lead (Metal Bulletin, 2002c).

Australian zinc producer Pasminco Ltd. produced 191,600 t of contained zinc in the second quarter of 2002, compared with 221,100 t during the same period in 2001. The decline was the result of its sale of the Broken Hill operations in May of last year and lower production at its Century and Roseberry Mines. Century produced 195,700 t in the second quarter, down 28% from 2001, due to a breakdown of the ball mill motor in March; it was not repaired until May. Production at Pasminco's refineries increased slightly in the second quarter to 175,100 t, with a record output at the Port Pirie and Hobart plants in southern Australia, offsetting problems at the remaining three smelters (Platts Metals Week, 2002b).

Spain's environment ministry has given Swedish metals company Boliden Metals AB a month to pay a $44 million fine for damage caused by a tailings dam failure at its Los Frailes Mine in southern Spain over 4 years ago. If the fine is not paid within 1 month, the case will be transferred to the treasury ministry, which could take unspecified measures against the company if it still refused to pay the fine. Boliden, however, claims that it was cleared of any responsibility by a criminal investigation following the failure. The investigation attributed the dam failure to defects in the construction and mistakes in the geologic assessment of the ground upon which the dam was built. According to the agreement Boliden reached with the local authorities, the Andalusian Government accepted responsibility for restoring the site, while Boliden agreed to financially compensate the Government in order to be freed from responsibility for redundancy payments. The company declared that any future claims should be directed against those responsible for the construction of the dam (Mining Journal, 2002).

Metaleurop SA plans to end primary zinc production and lead bullion production at its Noyelles-Godault smelter. Instead, the French company intends to change its 110,000-t/yr imperial smelting process to a zinc recycling operation. The conversion would cut the company's concentrate requirement, which is becoming increasingly scarce and expensive. Following the conversion, Noyelles-Godault would have the capacity to produce 70,000 t/yr of recycled zinc. As a result of the redesign, 380 jobs will be lost from the current total of 830 (CRU International Ltd., 2002b).

**Update**

Horsehead Industries Inc. became the latest casualty of low zinc prices. The parent company of Zinc Corporation of America (ZCA), the largest zinc producer in the U.S., filed for Chapter 11 bankruptcy protection on August 19, 2002. Horsehead is based in New York and has electric arc furnace flue dust processing plants in Pennsylvania, Tennessee, and Texas. ZCA operates the pyrometallurgical zinc plant in Monaca, PA, which had used flue dust, zinc scrap, and concentrate from its Pierrepont and Balmat Mines in upstate New York. Since August 2001, when Pierrepont was closed and Balmat was put on care and maintenance, ZCA has been using only secondary sources. Court filing by Horsehead listed assets of $216 million and liabilities of $231 million. Listed as the top unsecured creditors are the holders of $11 million in industrial revenue bonds, represented by the State Street Bank & Trust Co. The second largest unsecured creditor is the United Steelworkers union, with $10.1 million owed in retiree benefits (Metal Bulletin, 2002d).

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TABLE 1
SALIENT ZINC STATISTICS 1/

(Metric tons, unless otherwise specified)

| | | 2002 | | | |
|---|---|---|---|---|---|
| | 2001 | May | June | July | January-July |
| Production: | | | | | |
| Mine, zinc content of concentrate | 842,000 | 66,400 r/ | 66,400 r/ | 68,500 r/ | 456,000 |
| Mine, recoverable zinc | 799,000 | 63,800 r/ | 63,800 r/ | 65,900 r/ | 439,000 |
| Smelter, refined zinc | 299,000 | 18,100 | 17,900 | 13,300 | 122,000 |
| Consumption: | | | | | |
| Refined zinc, reported | 543,000 | 34,900 | 34,400 | 34,300 | 161,000 |
| Ores e/ (zinc content) | 727 | 61 | 61 | 61 | 424 |
| Zinc-base scrap e/ (zinc content) | 191,000 | 15,900 | 15,900 | 15,900 | 111,000 |
| Copper-base scrap e/ (zinc content) | 176,000 | 14,700 | 14,700 | 14,700 | 103,000 |
| Aluminum- and magnesium-base scrap e/ (zinc content) | 1,430 | 120 | 120 | 120 | 837 |
| Total e/ | 912,000 | 65,700 | 65,100 | 65,100 | 376,000 |
| Apparent consumption, metal 2/ | 1,140,000 | 127,000 | 84,000 | 71,700 3/ | 645,000 |
| Stocks of refined (slab) zinc, end of period: | | | | | |
| Producer 4/ | 7,380 | 7,470 | 6,670 | 6,830 | XX |
| Consumer 5/ | 57,100 | 55,200 | 57,400 | 57,300 | XX |
| Merchant | 10,300 | 9,920 | 9,400 | 10,200 | XX |
| Total | 74,700 | 72,600 | 73,500 | 74,300 | XX |
| Shipments of zinc metal from Government stockpile | 17,900 | 1,220 | 742 r/ | 889 | 3,470 |
| Imports for consumption: | | | | | |
| Refined (slab) zinc | 813,000 | 66,400 | 58,400 | NA | 439,000 6/ |
| Oxide (gross weight) | 72,000 | 6,180 | 6,100 | NA | 34,200 6/ |
| Ore and concentrate (zinc content) | 84,000 | 9,650 | 11,800 | NA | 66,000 6/ |
| Exports: | | | | | |
| Refined (slab) zinc | 1,180 | 124 | 81 | NA | 556 6/ |
| Oxide (gross weight) | 11,300 | 1,180 | 961 | NA | 5,760 6/ |
| Ore and concentrate (zinc content) | 696,000 | 18,900 | 4,920 | NA | 68,000 6/ |
| Waste and scrap (gross weight) | 44,000 | 3,580 | 2,770 | NA | 21,400 6/ |
| Price: | | | | | |
| London Metal Exchange, average, dollars per metric ton | $885.43 | $769.19 | $766.75 | $794.45 | $788.70 |
| Platts Metals Week North American Special High Grade, average, cents per pound | 43.96 | 38.16 | 38.04 | 39.30 | 39.02 |

e/ Estimated. r/ Revised. NA Not available. XX Not applicable.

1/ Data are rounded to no more than three significant digits; except prices; may not add to totals shown.

2/ Smelter production plus imports minus exports plus shipments from Government stockpile plus stock change.

3/ Data based on reported consumption, stocks, and estimated trade data.

4/ Data from U.S. Geological Survey and American Bureau of Metal Statistics.

5/ Includes an estimate for companies that report annually.

6/ Includes data through June only.

TABLE 2
REFINED ZINC PRODUCED IN THE UNITED STATES 1/

(Metric tons)

| Month | Beginning stocks 2/ | Production | Shipments | Ending stocks 2/ |
|---|---|---|---|---|
| 2001: | | | | |
| July | 8,580 | 18,900 | 20,100 | 7,340 |
| August | 7,340 | 19,800 | 20,600 | 6,540 |
| September | 6,540 | 24,800 | 24,500 | 6,760 |
| October | 6,760 | 19,900 | 19,900 | 6,750 |
| November | 6,750 | 20,000 | 19,500 | 7,210 |
| December | 7,210 | 18,400 | 18,200 | 7,380 |
| Year | XX | 299,000 | 299,000 | XX |
| 2002: | | | | |
| January | 7,380 | 18,800 | 15,400 | 10,800 |
| February | 10,800 | 19,800 | 19,600 | 11,000 |
| March | 11,000 | 16,900 | 18,200 | 9,760 |
| April | 9,760 | 17,600 | 18,000 | 9,420 |
| May | 9,420 | 18,100 | 20,000 | 7,470 |
| June | 7,470 | 17,900 | 18,700 | 6,670 |
| July | 6,670 | 13,300 | 13,100 | 6,830 |
| January-July | XX | 122,000 | 123,000 | XX |

XX Not applicable.
1/ Data are rounded to no more than three significant digits; may not add to totals shown.
2/ Includes stocks held at locations other than smelters.

Sources: U.S. Geological Survey and American Bureau of Metal Statistics.

TABLE 3
APPARENT CONSUMPTION OF REFINED ZINC ACCORDING TO INDUSTRY USE AND PRODUCT 1/

(Metric tons)

| | | 2002 | | | |
|---|---|---|---|---|---|
| Industry and product | 2001 | May | June | July 2/ | January-July |
| Galvanizing: | | | | | |
| Sheet and strip | 432,000 | 51,600 | 34,700 | 29,600 | 270,000 |
| Other | 146,000 | 21,200 | 12,200 | 9,500 | 99,500 |
| Total | 578,000 | 72,700 | 47,000 | 39,100 | 370,000 |
| Brass and bronze | 148,000 | 22,500 | 13,100 | 11,400 | 107,000 |
| Zinc-base alloy | 190,000 | 23,900 | 18,100 | 16,000 | 127,000 |
| Other uses 3/ | 226,000 | 8,000 | 5,900 | 5,400 | 41,400 |
| Grand total | 1,140,000 | 127,000 | 84,000 | 71,700 | 645,000 |

1/ Data are rounded to no more than three significant digits; may not add to totals shown.
2/ Data based on reported consumption, stocks and estimated trade data.
3/ Includes zinc used in making zinc dust, desilvering lead, powder, alloys, anodes, chemicals, castings, light metal alloys, rolled zinc, and miscellaneous uses not elsewhere specified.

TABLE 4
AVERAGE MONTHLY ZINC PRICES 1/

| Period | North American ¢/lb. | LME cash ¢/lb. | LME cash $/t |
|---|---|---|---|
| 2001: | | | |
| July | 42.42 | 38.65 | 852.06 |
| August | 41.31 | 37.54 | 827.68 |
| September | 39.97 | 36.21 | 798.21 |
| October | 38.04 | 34.52 | 761.14 |
| November | 38.39 | 35.04 | 772.49 |
| December | 37.48 | 34.21 | 754.28 |
| Year | 43.96 | 40.16 | 885.43 |
| 2002: | | | |
| January | 39.23 | 35.96 | 792.86 |
| February | 38.23 | 34.97 | 770.86 |
| March | 40.30 | 37.15 | 818.96 |
| April | 39.89 | 36.64 | 807.80 |
| May | 38.16 | 34.89 | 769.19 |
| June | 38.04 | 34.78 | 766.75 |
| July | 39.30 | 36.04 | 794.45 |
| January-July | 39.02 | 35.77 | 788.70 |

1/ Special High Grade.

Source: Platts Metals Week.

TABLE 5
U.S. EXPORTS OF ZINC 1/

| Material | 2001 Quantity (metric tons) | 2001 Value (thousands) | 2002 2/ June Quantity (metric tons) | 2002 2/ June Value (thousands) | 2002 2/ Year to date Quantity (metric tons) | 2002 2/ Year to date Value (thousands) |
|---|---|---|---|---|---|---|
| Refined (slab) zinc | 1,180 | $1,290 | 81 | $84 | 556 | $522 |
| Ore and concentrate (zinc content) | 696,000 | 285,000 | 4,920 | 2,940 | 68,000 | 24,300 |
| Waste and scrap (gross weight) | 44,000 | 22,800 | 2,770 | 1,430 | 21,400 | 10,800 |
| Powders, flakes, dust (zinc content) | 4,690 | 7,230 | 404 | 569 | 2,630 | 3,940 |
| Oxide (gross weight) | 11,300 | 17,600 | 961 | 1,420 | 5,760 | 8,470 |
| Chloride (gross weight) | 1,730 | 1,630 | 203 | 175 | 963 | 1,030 |
| Sulfate (gross weight) | 4,780 | 2,900 | 213 | 136 | 1,610 | 972 |
| Compounds, other (gross weight) | 227 | 499 | 30 | 37 | 105 | 261 |

1/ Data are rounded to no more than three significant digits.
2/ Data for July 2002 were not available at time of publication.

Source: U.S. Census Bureau.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF ZINC 1/

| Material | 2001 Quantity (metric tons) | 2001 Value (thousands) | 2002 2/ June Quantity (metric tons) | 2002 2/ June Value (thousands) | 2002 2/ Year to date Quantity (metric tons) | 2002 2/ Year to date Value (thousands) |
|---|---|---|---|---|---|---|
| Refined (slab) zinc | 813,000 | $773,000 | 58,400 | $48,700 | 439,000 | $364,000 |
| Ore and concentrate (zinc content) | 84,000 | 31,600 | 11,800 | 4,840 | 66,000 | 25,100 |
| Waste and scrap (gross weight) | 39,300 | 11,600 | 3,000 | 786 | 14,200 | 4,290 |
| Powders, flakes, dust (zinc content) | 26,700 | 45,000 | 2,160 | 3,360 | 14,700 | 23,000 |
| Oxide (gross weight) | 72,000 | 66,200 | 6,100 | 5,370 | 34,200 | 28,500 |
| Chloride (gross weight) | 946 | 1,020 | 50 | 81 | 344 | 364 |
| Sulfate (gross weight) | 16,200 | 7,330 | 2,060 | 861 | 11,200 | 5,810 |
| Compounds, other (gross weight) | 1,400 | 1,360 | 47 | 45 | 520 | 511 |

1/ Data are rounded to no more than three significant digits.
2/ Data for July 2002 were not available at time of publication.

Source: U.S. Census Bureau.

TABLE 7
SHIPMENTS OF ZINC METAL FROM THE NATIONAL DEFENSE STOCKPILE 1/

(Metric tons)

| Period | Beginning inventory | Shipments | Ending inventory |
|---|---|---|---|
| 2001: | | | |
| July | 128,000 | 2,570 | 125,000 |
| August | 125,000 | 3,340 | 122,000 |
| September | 122,000 | 1,680 | 120,000 |
| October | 120,000 | -- | 120,000 |
| November | 120,000 | -- | 120,000 |
| December | 120,000 | 100 | 120,000 |
| Year | XX | 17,900 | XX |
| 2002: | | | |
| January | 120,000 | 220 | 120,000 |
| February | 120,000 | -- | 120,000 |
| March | 120,000 | 202 | 120,000 |
| April | 120,000 | 197 | 119,000 |
| May | 119,000 | 1,220 | 118,000 |
| June | 118,000 | 742 r/ | 118,000 |
| July | 118,000 | 889 | 117,000 |
| January-July | XX | 3,470 | XX |

r/ Revised. XX Not applicable. -- Zero.
1/ Data are rounded to no more than three significant digits; may not add to totals shown.

Source: Defense Logistics Agency.

TABLE 8
U.S. IMPORTS OF ZINC, BY TYPE OF MATERIAL AND COUNTRY 1/ 2/

(Metric tons)

| | General imports | | | Imports for consumption | | |
|---|---|---|---|---|---|---|
| | | 2002 2/ | | | 2002 2/ | |
| Material and country | 2001 | June | Year to date | 2001 | June | Year to date |
| Ore and concentrate (zinc content): | | | | | | |
| Australia | 17,200 | 8,050 | 30,600 | 17,200 | 8,050 | 30,600 |
| Mexico | 10,700 | -- | 6,640 | 10,700 | -- | 6,640 |
| Peru | 54,900 | 3,780 | 28,700 | 54,900 | 3,780 | 28,700 |
| Other | 1,150 | -- | 89 | 1,150 | -- | 89 |
| Total | 84,000 | 11,800 | 66,000 | 84,000 | 11,800 | 66,000 |
| Blocks, pigs, or slab: | | | | | | |
| Australia | 55,700 | -- | 28,000 | 29,700 | -- | 21,000 |
| Brazil | 17,900 | 1,330 | 9,940 | 17,900 | 1,330 | 9,940 |
| Canada | 442,000 | 45,200 | 258,000 | 438,000 | 45,200 | 258,000 |
| China | 31,800 | 2,970 | 24,800 | 7,260 | 1 | 19 |
| Kazakhstan | 88,900 | -- | 45,600 | 88,900 | -- | 45,600 |
| Korea, Republic of | 30,600 | 19,000 | 35,100 | 10,800 | -- | 13 |
| Mexico | 141,000 | 11,400 | 73,000 | 140,000 | 11,400 | 73,000 |
| Peru | 48,800 | -- | 16,400 | 47,600 | -- | 14,400 |
| Poland | 8,530 | -- | 5,890 | 8,530 | -- | 5,890 |
| Russia | 14,400 | -- | 1,260 | 14,400 | -- | 1,260 |
| South Africa | 7,030 | -- | 2,970 | 7,030 | -- | 2,970 |
| Other | 16,300 r/ | 432 | 22,200 | 3,270 r/ | 432 | 6,790 |
| Total | 903,000 | 80,400 | 523,000 | 813,000 | 58,400 | 439,000 |
| Dross, ashes, fume (zinc content) | 12,000 | 1,110 | 7,190 | 12,000 | 1,110 | 7,190 |
| Grand total | 999,000 | 93,400 | 596,000 | 909,000 | 71,400 | 512,000 |
| Oxide (gross weight): | | | | | | |
| Canada | 47,500 | 4,040 | 21,900 | 47,500 | 4,040 | 21,900 |
| Japan | 1,110 | 146 | 423 | 1,110 | 146 | 423 |
| Mexico | 18,900 | 1,390 | 9,490 | 18,900 | 1,390 | 9,490 |
| Netherlands | 2,820 | 290 | 1,480 | 2,820 | 290 | 1,480 |
| Other | 1,620 r/ | 230 | 867 | 1,620 r/ | 230 | 867 |
| Total | 72,000 | 6,100 | 34,200 | 72,000 | 6,100 | 34,200 |
| Other (gross weight): | | | | | | |
| Waste and scrap | 39,300 | 3,000 | 14,200 | 39,300 | 3,000 | 14,200 |
| Sheets | 7,240 | 77 | 620 | 7,240 | 77 | 620 |
| Powders, flakes, dust (zinc content) | 26,700 | 2,160 | 14,700 | 26,700 | 2,160 | 14,700 |

r/ Revised. -- Zero.
1/ Data are rounded to no more than three significant digits; may not add to totals shown.
2/ Data for July 2002 were not available at time of publication.

Source: U.S. Census Bureau.